

Amendments to the Specification

Please replace the paragraph beginning at page 7 line 2, with the following rewritten paragraph:

A<sup>1</sup> Figure 1 is a block diagram illustrating an example communication environment 100 in which the present invention can be implemented. Communication environment 100 is shown containing remote systems 110-A through 110-X, access network 120, network access server (NAS) 150, home gateways 170-A and ~~170-N~~ 170-B, and hosts 190-A and 190-B. Each system is described below in further detail.

10 Please replace the paragraph beginning at page 7 line 7, with the following rewritten paragraph:

A<sup>2</sup> Remote systems 110-A through 110-X are used by subscribers (or end users) to access hosts (e.g., ~~190~~ 190-A) of interest. Devices commonly ~~known~~ known as customer premise equipment (CPE) and computer systems with modems are examples of remote systems 110-A through 110-X. Each remote system 110-A through 110-X may access a desired host 190-A or 190-B. Only a few representative remote systems and hosts are included in Figure 1 for illustration. Typical environments contain many more systems in reality.

Please replace the paragraph beginning at page 8 line 10, with the following rewritten paragraph:

A<sup>3</sup> In step 210, NAS 150 receives a plurality of keep-alive messages from different remote systems (110-A through ~~110-A~~ 110-X) related to different sessions. In step 220, NAS 150 aggregates the messages into a single packet ("aggregated request packet") suitable for transmission on backbone path 157-A. The packet can be generated in any format, but needs to be consistent with the implementation of home gateway 170-A.

25 Please replace the paragraph beginning at page 8 line 15, with the following rewritten paragraph:

A4  
In step 240, NAS 150 transmits the aggregated request packet to home gateway 170-A (peer aggregation device) on path ~~157~~ 157-A. In an embodiment described below, NAS 150 transmits a packet covering the keep-alive messages received in each of a successive time periods (e.g., 10 seconds).

5 Please replace the paragraph beginning at page 8 line 19, with the following rewritten paragraph:

A5  
10 In step 250, home gateway 170-A receives the packet and generates an aggregated reply packet indicating the status of the sessions requested by the packet generated in step 220. The reply packet also can be of any format, but needs to be consistent with the implementation of NAS 150. In step 270, the packet is transmitted to NAS ~~250~~ 150. Control then passes to step 210, in which NAS 150 continues to monitor for more arriving keep-alive messages.

Please replace the paragraph beginning at page 9 line 18, with the following rewritten paragraph:

15 A6  
Byte 2: Indicates a code ~~with~~ within the PPP protocol. According to an aspect of the present invention, the value is set to 12, a new value not specified by the RFCs.

Please replace the paragraph beginning at page 9 line 21, with the following rewritten paragraph:

A7  
20 Bytes 5 Onwards: Number of sets equal to count, with each set containing MID field, ~~NAS magic field~~ aggregation device magic number, Client Magic Field number and a status field. The four fields are described below in further detail.

Please replace the paragraph beginning at page 10 line 3, with the following rewritten paragraph:

A8 MID (2 Bytes): ~~MHS~~ MID is a L2F session identifier corresponding to the PPP session. MID may be negotiated when the session is set up in a known way.

Please replace the paragraph beginning at page 14 line 19, with the following rewritten paragraph:

5 Encapsulator 450 encapsulates the data received from reply generator 440 and sends  
A9 the ~~aggregates~~ aggregate reply packet using output interface 460 to NAS 150. NAS 150 may then process the reply packet as described above with reference to Figure 3.

Please replace the paragraph beginning at page 15 line 12, with the following rewritten paragraph:

10 Network interface 580 enables NAS 150 to send and receive data on communication  
A10 networks using protocols as asynchronous transfer mode (ATM). Network interface 580 may correspond to input interface 310 and output interface ~~390~~ 360 of Figure 3. Network interface 580, output interface 560 and input interface 590 can be implemented in a known way.

15 Please replace the paragraph beginning at page 15 line 28, with the following rewritten paragraph:

A11 RAM ~~530~~ 520 and storage 530 may together be referred to as a memory. RAM ~~530~~ 520 may receive instructions and data on path 550 from storage 530. ~~Secondary memory~~ Storage 530 may contain units such as hard drive 535 and removable storage drive 537.  
20 ~~Secondary storage~~ Storage 530 may store the software instructions and data, which enable NAS ~~550~~ 150 to provide several features in accordance with the present invention.